

No. II.—SECOND REPORT ON THE ARACHNIDA—THE SCORPIONS,
PEDIPALPI, AND SUPPLEMENTARY NOTES ON THE OPILIONES
AND PSEUDOSCORPIONS.

By S. HIRST.

(Text-figures 1—7.)

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Read 1st May, 1913.

THE distribution of the Araneæ was considered at some length in my first paper on the results of this expedition, and therefore I will content myself in the present report with making a few remarks on the other groups of Arachnida.

The species of scorpions occurring in the Seychelles are three in number, but one of them is the cosmopolitan *Isometrus maculatus* De Geer. One of the two remaining species—*Lychas braueri* Krpln.—is peculiar to these islands and its presence there is of considerable interest, for the distribution of the genus to which it belongs is very suggestive of the former existence of continuous land between the Oriental region and the southern half of the African continent. The genus *Lychas* has four representatives in Africa, two of them being tropical forms and the other two S. African. Another species is only known to occur at Round Island, near Mauritius, whilst the genus is well represented in the countries from India to Australia. Lastly there is the large black scorpion, *Chiro-machus ochropus* C. L. Koch, which is also found at Round Island and at Zanzibar. It is difficult to account for the distribution of this species except by former land connections.

Four species of Pedipalpi inhabit the Seychelles, and three of them are restricted to those islands, but these indigenous species are of small size, and our knowledge of the groups to which they belong is still very incomplete; it would be useless, therefore, to discuss their distribution. The remaining species, *Tarantula scaber* Gerv., has the same distribution as the large black scorpion mentioned above, occurring at Round Island and Zanzibar.

It is well known that Pseudoscorpions sometimes attach themselves to insects, and this habit must help considerably in the dispersal of these little arachnids. They are most often found clinging to the legs of flies, but occasionally also to those of other insects, and sometimes they occur under the elytra of beetles*. Several Pseudoscorpions collected on vertebrates have been forwarded to the British Museum during the last few years. The

* A very useful account of the pseudoparasitism of chelifers on other arthropods has been published by Mr H. Wallis Kew (*Naturalist*, 1901, p. 193).

data of these specimens is as follows:—1. A specimen found on a sheep at Tomotoku, Gold Coast (H. Palmer). 2. One hundred and forty specimens captured by Dr S. A. Neave on the skin of a mole-rat (*Tachyoryctes audax* Thos.), at Emba, east of Mount Kenga. Some parasitic mites of the family Gamasidæ were present in the same tube as these chelifers. 3. Pseudoscorpion found on *Anas undulata*, Seziwa Swamp, Chagwe, Uganda (S. A. Neave). 4. A specimen, *Chelifer* (*Chernes*?) sp., found on a mouse at Jung-ting-shan, China (Capt. H. E. M. Douglas). These details may perhaps throw some light on the distribution of Pseudoscorpions. Nos. 1—3 have been sent (together with many other unnamed specimens of this order) to Mr E. Ellingsen for determination. On receiving my list of them, Mr Ellingsen drew my attention to the fact that he had suggested* that *Chthonius tetrachelatus* Preysslér—a European Pseudoscorpion recorded by him as occurring in the Seychelles—might perhaps have been introduced into that locality by birds. It seems quite possible that false scorpions may be carried from one place to another by such means, but I think that it is more probable that this species has been introduced into the Seychelles through human agency, viz. by trade. In his paper on the Pseudoscorpions collected by the Danish Expedition to Siam, Mr C. J. With discusses their geographical distribution, and mentions that several species of these arachnids have been found at Copenhagen in rice on ships from India. Therefore this means of transportation must not be overlooked.

It may, perhaps, be of interest to note that a species of Pseudoscorpion was collected by Dr v. Willemoes Suhm on the isolated islets known as St Paul's Rocks, during the voyage of the "Challenger" (see Narrative of the Cruise, vol. I. part 1, p. 205, 1885). Several years ago I sent his specimens to Mr C. J. With, who identified them as *Chelifer garypoides* Ell., a species discovered by Fea at Bolama, Portuguese Guinea. It seems to me quite possible that this chelifer has been carried to St Paul's Rocks whilst attached to a bird; otherwise it is extremely difficult to account for its occurrence there. Perhaps I ought to add that the three species of birds which are found at St Paul's Rocks are widely distributed forms and occur also in Africa.

SCORPIONES.

1. *Lychas braueri* Krpln.

Archisometrus braueri Kraepelin, Mt. Mus. Hamburg, 13, p. 123 (1896); Kraepelin, Das Tierr., Scorp. &c. p. 46 (1899).

Localities. Mahé (in high jungle); Silhouette; Praslin. Prof. Kraepelin's specimens were captured on Praslin.

2. *Isometrus maculatus* De Geer.

Localities. Dennis Island and Bird Island, Seychelles. Astove. Specimens were also obtained at Aldabra (Takamaka, Ile Esprit, and Ile Michel).

3. *Chiromachus ochropus* C. L. Koch.

Ischnurus ochropus, C. L. Koch, Die Arachn. iv. p. 69 (1838).

* Mitt. Zool. Mus. Berlin, iv. p. 402 (1910).

Chiromachus ochropus, Pocock, Ann. and Mag. Nat. Hist. (6), xii. p. 320 (1893).

Ichnurus ochropus, Kraepelin, Das Tierr., Scorp. &c. p. 153 (1899).

Chiromachus ochropus, Pocock, Ann. and Mag. Nat. Hist. (7), x. p. 364 (1902).

Localities. Three specimens from Ile au Récif and one from Praslin. Three specimens were obtained by Mr H. P. Thomasset at Frigate Island, Seychelles, and another specimen was collected on the same island by the naturalists on the Valhalla. In the British Museum there are a number of specimens from Praslin (Madame la Veuve F. Adam) and others from Round Island, near Mauritius (Sir H. Barkly), and from Zanzibar.

PEDIPALPI.

1. *Schizomus similis* sp. n. (Text-figs. 1—3.)

Cephalothorax. Eyes apparently absent. Cephalic sternum longer than wide. Pale stripe of second thoracic segment indistinct.

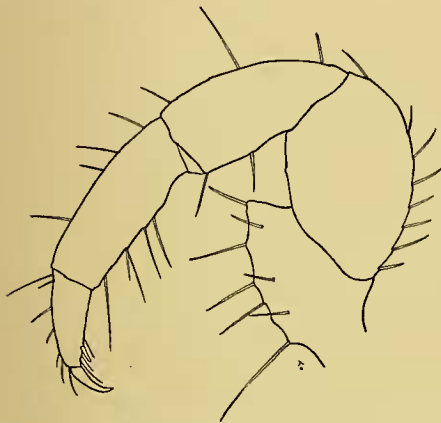


Fig. 1. *Schizomus similis* sp. n. Lateral view of palp.

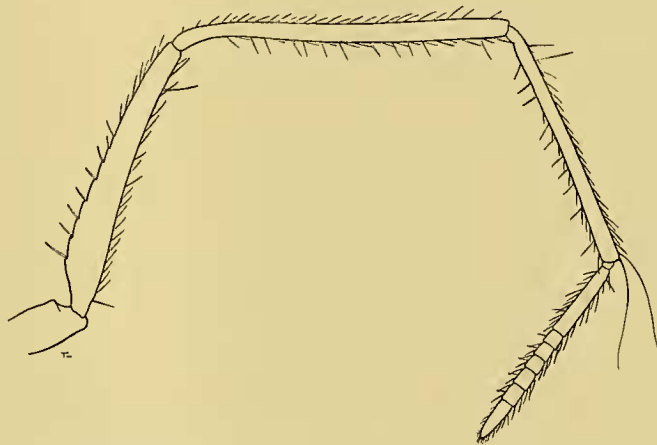


Fig. 2. *Schizomus similis* sp. n. Lateral view of first leg.

Palp fairly robust. Anterior part of ventral surface of trochanter considerably produced so as to form a sharp angular projection. Femur very deep (high). Patella a little more than twice as long as deep. Claw about half the length of the upper margin of the tarsus (Fig. 1).

First leg much longer than the body; its femur considerably longer than the tibia. Foot very distinctly shorter than tibia, and about thirteen and a half times as long as deep; second metatarsal segment almost as long as the united length of the first five (proximal) segments of the tarsus; distal tarsal segment about equal in length to the sum of the lengths of the three proximal segments and rather more than half the length of the metatarsus (Fig. 2).

Femur of fourth leg a little less than two and a half times as long as its (greatest) depth (Fig. 3).

Flagellum very long and slender, being about nine times as long as deep.

Length of body (not including flagellum) 4 mm. ; of first leg (from base of trochanter) 4·8 mm.

Colour rather dark brown.

Locality. Long Island (Mahé), Seychelles ; specimens from wood containing termites.

Remarks. As will be seen from the above description, this new species of *Schizomus* differs considerably from *S. latipes* Hans., which was hitherto the only Tartarid known to occur in the Seychelles. I have not seen any male specimens of it, and therefore will not attempt to discuss its affinities with other species.

2. *Tarantula scaber* Gerv.

Localities. Mahé, Seychelles. In the British Museum Collection there are examples of this species from Round Island, near Mauritius and also from Zanzibar.

3. *Charinus seychellarum* Krpln.

Charinus seychellarum Kraepelin, Mt. Mus. Hamburg, vol. xv. p. 41 (1898) ; Kraepelin, Das. Tierr., Scorpions, &c. p. 250 (1899).

Localities. Mahé and Long Island ; Silhouette ; Praslin ; Félicité.



Fig. 3. *Schizomus similis* sp. n. Lateral view of femur of the fourth leg.

OPILIONES.

Family Phalangodidæ.

An important paper dealing with the Opiliones of this family (and also with the family Assamiidæ) has recently been published* by Dr C. Fr. Roewer. The presence or absence of a scopula on the ventral surface of the tarsi of the third and fourth legs is one of the chief characters which he uses to separate the Phalangodidæ into subfamilies. This character, however, does not appear to me to be a convenient one for the purpose, for this scopula is sometimes very weak and indistinct in these Opiliones, and is then easily overlooked ; moreover, in other species, the scopula is well developed only on the last two (distal) segments of the tarsus. By using this character and also that of the number of the segments of the terminal part of the tarsus of the first leg, Dr Roewer places, into different subfamilies, genera which seem to me to be very closely allied to one another. For instance the genera *Sitalces* E. Simon, *Podoctis* Thorell, and *Erecanana* Strand are placed by him into the subfamilies Ibaloninæ, Podoctinæ and Erecananinæ respectively, whereas they resemble one another very closely in structure. Personally, I think that it is probable that *Erecanana* will ultimately prove to be a synonym of *Sitalces*. It is true

* Arch. Natg. A, 1912, heft 3, p. 111 &c.

that the terminal part of the first tarsus is bisegmented in *Sitalces* and *Podoctis*, whilst it is said to be undivided in *Erecanana*, but, even if this is really the case, I doubt if it is of generic importance.

It must be mentioned, however, that the number of the segments of the terminal part of the tarsus of the first and second leg is constant in the family Cosmetidæ, the segments being always three in number (see Roewer, Arch. Natg. A, 1912, heft 10, p. 3), but I do not think it follows that this character is of much systematic value in the family Phalangodidæ. Personally, I agree with Dr Loman* and consider that the number of tarsal segments of the legs is not a good generic character.

With regard to the employment of the presence (or absence) and number of thorns or denticles on the scutum and free dorsal segments as a systematic character, it must be remembered that there is often a considerable amount of variation in this respect—the size and sometimes even the number of the spines varying in different individuals of the same species. This feature must, therefore, be used with caution, even when determining species. I am very doubtful about the use of the presence or absence of armature as a means of distinguishing genera.

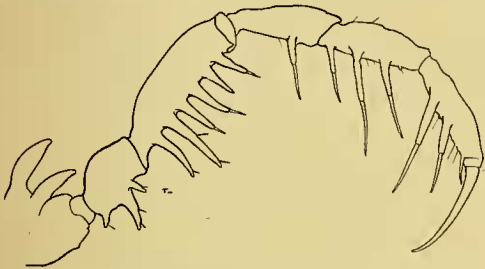


Fig. 4. *Ibalonius inscriptus* Loman. Lateral view of palp of male.



Fig. 5. *Ibalonius inscriptus* Loman. Lateral view of palp of female.

1. *Ibalonius inscriptus* Loman. (Text-figs. 4, 5.)

Ibalonius inscriptus + *I. bimaculatus* Loman, Zool. Jahrb. Syst. v. xvi. pp. 201 and 202 (1902).

Ibalonius inscriptus, Hirst, Trans. Linn. Soc. Ser. 2, Zool. xiv. p. 389, text-fig. 7 (1911).

Paribalonius inscriptus + *P. bimaculatus* Roewer, Arch. Naturg. (1912) heft 3, p. 195.

Besides the sexual difference in the shape and armature of the chelicerae, adult examples of this species also differ markedly from those of the opposite sex in the armature of the palp, the proximal segments of this appendage being much more strongly armed in the male than is the case in the female (see Figs. 4, 5); both of these sketches are taken from specimens of the two-spotted form of the species (= *I. bimaculatus* Loman), but this sexual difference is also well-marked in examples of *I. inscriptus* which are not furnished with spots.

Locality. For localities see my previous report on the Araneæ, Opiliones and Pseudoscorpions of the Seychelles, referred to above.

* Die Fauna Südwest-Australiens, Vol. iii. pp. 127—134 (1910).

Genus PHALANGODES Tellkampff.

In his paper on the Phalangodidæ, Dr Roewer states that the tarsus of the first leg has three segments in *Scotolemon* and four in *Phalangodes*, and says that the former is restricted to Europe and the Mediterranean region, *Phalangodes* occurring in North and Central America. Unfortunately, however, he was not able to examine specimens of all the known species. I take this opportunity of pointing out that the tarsus of the first leg of one French species*—*Phalangodes querilhaci*, Lucas, has four distinct segments as in the North American species which are referred by Roewer to the genus *Phalangodes*; the tarsus of the second leg of this species has ten segments, and its ocular tubercle is well removed from the anterior margin of the cephalothorax.

10. *Phalangodes?* *nanus* sp. n. (Text-figs. 6, 7.)

Body. Cephalothoracic part of body much narrower than and not so high as the abdominal part, the latter is widest at the posterior end of the scutum and is wider than long.

Scutum slightly longer than the combined length of the patella and tibia of the fourth leg. Transverse grooves five in number; the first one is deep and forms the boundary between cephalothorax and abdomen; it is not procurved but practically straight, and is

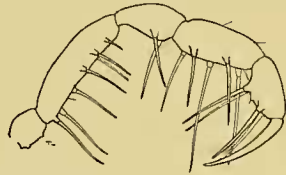


Fig. 6. *Phalangodes?* *nanus* sp. n. Palp from the inner side.



Fig. 7. *Phalangodes?* *nanus* sp. n. Palp from the outer side.

parallel with the four other grooves, which are very superficial. First area (cephalothorax) much the largest, and it is only slightly shorter than the combined length of the three first abdominal areas of the scutum. Surface of scutum unarmed; there is a longitudinal series of minute granules on each side of it, and some exceedingly minute granules are also present on the abdominal part, but they are not numerous and are very difficult to see. Ocular tubercle situated *practically in the middle* of the cephalothoracic area; it is normal in appearance, being transversely elongated, low, and long oval in shape; neither processes nor granules are present on its surface. A very slight elevation is situated in front of the ocular tubercle, between it and the anterior margin.

Free dorsal segments unarmed and without any distinct granules.

Chelicerae short, and, apparently, there are no distinct processes or granules either on the first or second segments; the latter is not swollen.

Palp apparently more slender than is usually the case in the European species of the genus. There are one or two obsolete granules on the lower surface of the trochanter, and they bear fine setae. Femur armed ventrally with four spines on its outer side, the

* Our specimens of this species were presented to the Museum several years ago by M. Eugène Simon.

two proximal ones being much the longest; towards the distal end there is also an inner row of three spines, the one which is situated nearest the distal end being much shorter than the others. Patella with a long spine on each side, and these two spines are practically equal in length. Tibia with three very long spines and a little apical spine on the outer side; it has two long inner spines also. Tarsus very short and its proximal end is narrowed; on each side it has two long spines (Figs. 6, 7).

Legs of moderate length; there are some distinct granules on the posterior surface of the coxa of the second leg and also a few minute granules on the anterior surface of the coxa of the fourth. Femur of fourth leg not quite straight, its proximal end having a slight inward curve, and the distal end an exceedingly slight outward curve, when viewed from above. Tarsal segments 3, 5, 5, 5. Claws of posterior legs smooth (without teeth).

Length 1.75 mm.

Colour. Body and appendages brownish; patella, tibia and tarsus of palp slightly infuscated; the distal segments of the legs deeply infuscated, except for the distal ends of the tarsi, which are usually brownish.

Locality. Mahé, Seychelles; a single specimen of the female sex.

The following species of harvest-man from the Seychelles has recently been described by Dr Roewer:—

11. *Metazalmoxis ferruginea* Roewer.

Arch. Natg., A (1912), heft 3, p. 135.

Seychelles (exact locality unknown).

PSEUDOSCORPIONS.

1. *Fealla affinis*, Hirst, Trans. Linn. Soc. Ser. 2, Zool. xiv. p. 394, text-fig. 11 (1911).

NOTE. Mr Ellingsen informs me that this species also occurs in India (Nagpur).